Los Alamos National Laboratory
Risk Reduction & Environmental Stewardship

Remediation Services Information Sheet

The Los Alamos National Laboratory is operated by the University of California for the Department of Energy.

Los Alamos townsite and Laboratory operations in early 1950s

The Laboratory was founded in 1943 as part of the Manhattan Project, which was to develop the first atomic weapon. During this time, the disposal of hazardous chemical and radioactive wastes was not regulated and therefore some of these materials were disposed of improperly.

The mission of the Remediation Services project is to remedy environmental problems caused by 50 years of Laboratory operations by bringing together multi-disciplinary, world-class science, engineering, and state-of-the-art management practices. The Project's goals are to

- ***protect human health and the environment from exposure to hazardous, radioactive, and mixed wastes from past treatment, storage, and disposal practices and***
- ***meet the environmental cleanup requirements of the Laboratory's permit to operate hazardous waste facilities.***

Use of remote controlled excavation equipment by the Project to remove high explosives and hazardous materials during cleanup and closure operations at Material Disposal Area P in Technical Area 16

The Laboratory's Remediation Services project was established in 1989 as part of a Department of Energy nation-wide program. The project's purpose is to investigate whether hazardous chemicals and/or radioactive wastes are present as a result of past Laboratory operations and to remediate (clean up and restore) such sites.

These sites are called potential release sites. Contamination originated from septic tanks and lines, chemical storage areas, wastewater outfalls (the area below a pipe that drains wastewater), material disposal areas (landfills), incinerators, firing ranges and their impact areas, surface spills, and electric transformers. Potential release sites are found on mesa tops, in material disposal areas, in canyons, and in a few areas in the Los Alamos townsite.

Since its inception, the project has reduced the number of potential release sites requiring further action from the original total of 2,100 sites by over 60%. This has been accomplished by remediating sites that were found to be contaminated; by evaluating sites and confirming that there is no adverse impact on human health, plants and animals, and the environment; and by combining pieces of sites into larger units for the purpose of investigation and remediation.

The project organizes its site investigation and remediation efforts according to the watersheds in which the sites are found. A watershed is composed of one or more mesas, all of the drainages from those mesas, and the major canyon into which the drainages converge.

The Remediation Services project evaluates an entire watershed from a mesa top, through a canyon, to the Rio Grande. This is done in order to understand how contamination moves in sediments, soils, surface water, and groundwater throughout the watershed. Remediation decisions are made by taking the entire watershed system into consideration. The project evaluates the amount of contaminants, the type of contamination, and public accessibility to the watershed and analyzes human health and ecological risks within the watershed. The project uses the evaluation results to prioritize its remediation efforts so the most contaminated and most publicly accessible sites are addressed first. Each watershed presents unique challenges because of its location and topography and because of the cleanup solutions required by the types of hazardous chemical and/or radioactive wastes found in the watershed.

Aerial view of Los Alamos National Laboratory and surrounding canyons and mesas

The general process for evaluating and remediating potential release sites is called the corrective action process and is outlined on the following page. Some activities and decision points are the same whether they are applied to an individual potential release site or to an entire watershed; however, assessments of risks to human health and the environment are more representative when performed on an entire watershed.

There are two possible outcomes when the project performs site remediations. The first outcome results in the site being restored to conditions similar to before the Laboratory began operations, by removing contamination to acceptable levels that protect human health and the environment. The second type of remedial outcome results in the reduction of risks by removing as much of the contamination as possible. In this case, the project protects human health and the environment by implementing long-term stewardship activities such as containing the contaminants on the site, restricting access to the site, and performing surveillance and monitoring, as long as necessary.

The Corrective Action Process

- Collect and evaluate existing data and information about the sites.
- Determine what sites need to be further investigated.
- Develop a plan to collect and evaluate data and information that do not exist about the site.
- Confirm or deny that contaminants have been released.
- If a release has occurred, determine the "nature" (the origin, type, and amount of chemicals, either natural or man-made, that are present in the environment) and "extent" (the way a chemical is distributed in the environment) of the contamination.
- Conduct risk assessments – human health and ecological – if necessary.
- Determine and complete appropriate/approved cleanup activities.
- Document all decisions and conduct stakeholder involvement activities.
- Implement long-term surveillance and monitoring activities – if necessary.

Corrective actions are complete at a potential release site when the project has demonstrated and documented to the regulatory authority's satisfaction that the site poses no unacceptable risk to humans and ecological resources, such as plants and animals.

Surface disposal area on Laboratory property - before remediation

Surface disposal area on Laboratory property - during remediation

Surface disposal area on Laboratory property - after remediation

The New Mexico Environment Department is the regulatory authority for potential release sites that are contaminated by hazardous chemicals that are listed on the Laboratory's Hazardous Waste Facility Permit. The Department of Energy is the regulatory authority for all other sites, particularly those with radiological contamination.

Community residents on a tour of Los Alamos Canyon

Remediation Services project managers believe that the corrective action process for all potential release sites will be complete by 2013. Future work will focus on sites in the Los Alamos townsite at the head of the Los Alamos/Pueblo watershed and will work down all of the watersheds to the Rio Grande. In addition, the Laboratory will continue to monitor some sites for at least 30 years to ensure that long-term stewardship goals are met.

Project workers remove soil cores during a sampling activity at a drilling site on Laboratory property in Los Alamos Canyon

Would you like additional information about Remediation Services? Call, write, or send email to:

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